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SECTION I: PURPOSE OF AND NEED FOR ACTION

INTRODUCTION

The Nevada Department of Wildlife (NDOW) in cooperation with the National Park Service (NPS) is considering bighorn sheep (*Ovis canadensis nelsoni*) management activities within the Eldorado Mountains, Newberry Mountains, Black Mountains, River Mountains, and Muddy Mountains in the Nevada portion of Lake Mead National Recreation Area (NRA) and in adjacent Bureau of Land Management (BLM) administered areas. Part of the action area would occur in designated Wilderness within Lake Mead NRA and adjacent Wilderness administered by the BLM.

Lake Mead NRA is situated in southeastern Nevada and northwestern Arizona and encompasses lands around lakes Mead and Mohave (Figures 1 and 2).

The bighorn sheep management activities would include: aerial helicopter surveys, affixing telemetry collars for a study, and, if determined appropriate, capture and relocation of selected bighorn sheep. Aerial surveys of bighorn sheep populations would occur within the Eldorado Mountains, Newberry Mountains, Black Mountains, River Mountains, and Muddy Mountains of Nevada. Activity would involve approximately 2 to 6 hours of flight time in each mountain range at low elevations for the purpose of conducting a routine annual census of desert bighorn sheep populations. Population estimates and demographic data collected would be used to set sustainable harvest quotas and inform managers of current herd conditions and trends. In addition, some bighorn would be affixed with telemetry collars to assess impacts to the sheep from highway and bridge construction as well as disturbances from other activities occurring in the River Mountains. Based on the survey results, some bighorn sheep could be captured and relocated to other areas for transplant purposes.

PURPOSE AND NEED

Desert bighorn sheep occupy most of the mountainous areas within Lake Mead NRA. The southern Nevada population of desert bighorn sheep is one of the premier populations of desert bighorn sheep in the nation. The fall 2002 and spring 2003 population estimates reflect declines in all herds. Downward trends are due to insufficient availability of quality forage as a result of severe drought conditions, habitat degradation, and habitat fragmentation.

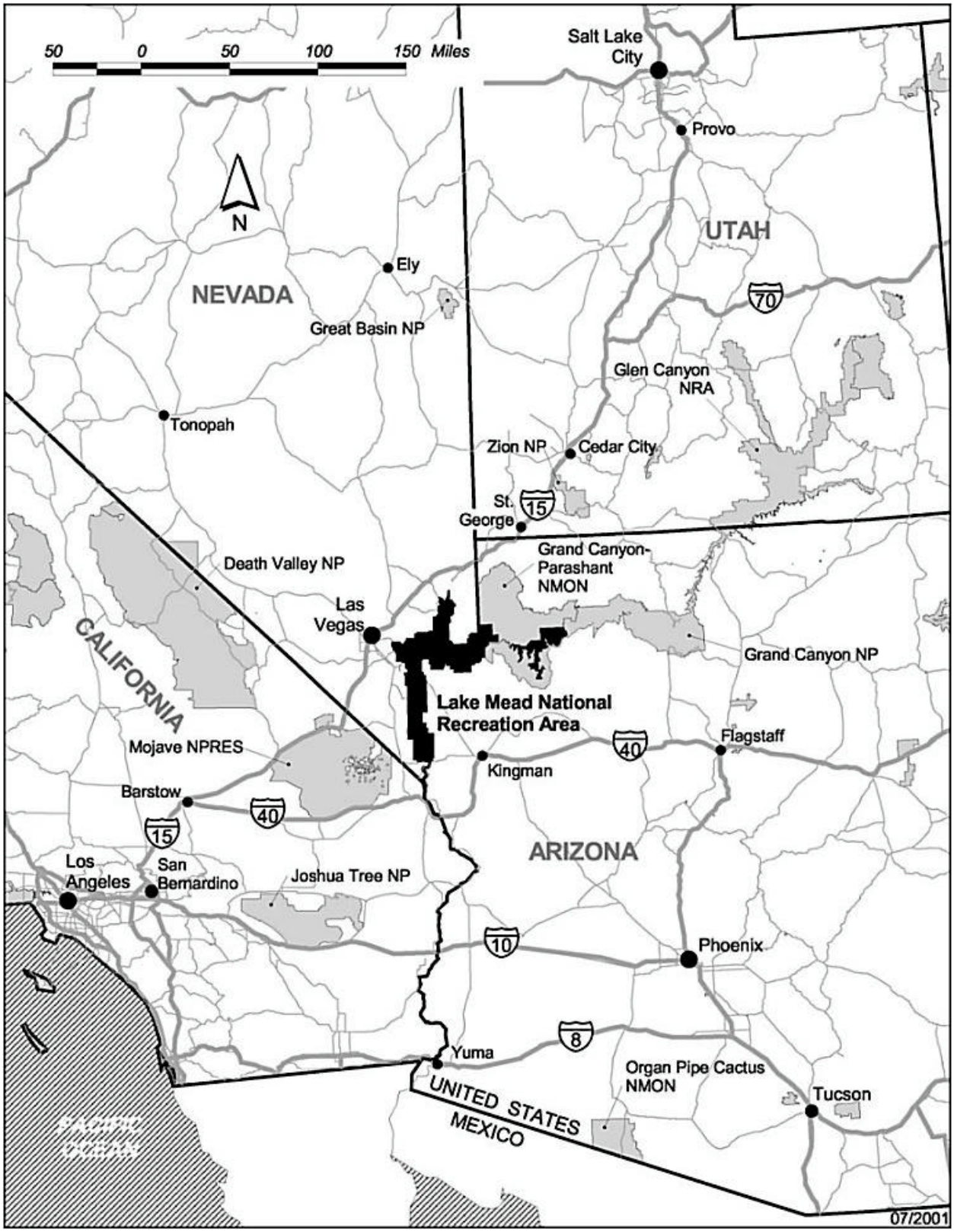
One purpose of this project is to conduct a routine annual census of desert bighorn sheep populations to provide population estimates and to collect demographic data. This information would be used to set sustainable harvest quotas and to inform managers of current herd conditions and trends.

An additional purpose of this project is to affix telemetry collars on bighorn sheep to assess the impacts from highway and bridge construction activities on the sheep.

Aerial net gun captures and/or drop-net captures could be conducted in certain mountain ranges to affix telemetry collars on the bighorn sheep. As part of NDOW's ongoing

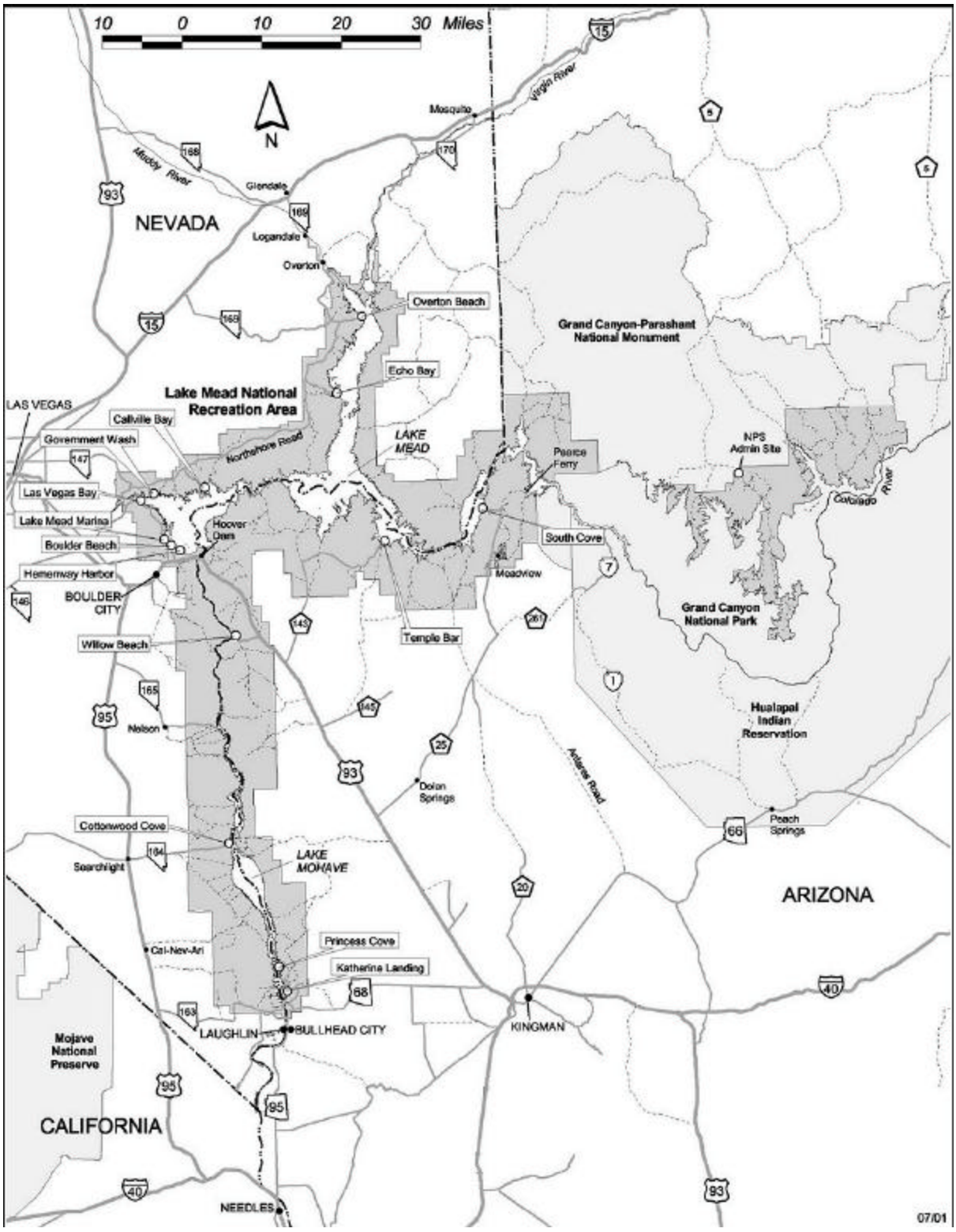
Lake Mead National Recreation Area Regional Map

Figure 1



Lake Mead National Recreation Area Map

Figure 2



trapping and transplant program, bighorn sheep may be captured and relocated to other areas to supplement existing populations of sheep.

Monitoring bighorn sheep populations to assess trends and detect significant demographic changes and/or home range/movement changes is important in maintaining optimal levels of bighorn sheep. Bighorn populations are highly sensitive to changes due to the harsh environments they inhabit. Without knowledge of population status and distribution, it would be difficult to make sound management decisions regarding harvest, augmentations, habitat conservation and enhancement, and incompatible activities in bighorn habitat.

In addition, the Clark County Conservation of Public Land and Natural Resources Act of 2002 (P.L. 107-282) provides the following direction related to wildlife management within Wilderness in the recreation area:

- Management activities to maintain or restore fish and wildlife populations and the habitats to support such populations may be carried out within wilderness areas designated by the Act of 2002 where consistent with relevant wilderness management plans, including the occasional and temporary use of motorized vehicles, if such use, as determined by the Secretary, would promote healthy, viable, and more naturally distributed wildlife populations that would enhance wilderness values and accomplish those purposes with the minimum impact necessary to reasonably accomplish the task.(Sec. 208b)
- The State [of Nevada] may continue to use aircraft, including helicopters, to survey, capture, transplant, monitor, and provide water for wildlife populations, including bighorn sheep, and feral stock, horses, and burros (Sec. 208c).

The environmental assessment (EA) evaluates the no action alternative and one action alternative. The alternatives analyzed are: Alternative A: No action; and, Alternative B: Conduct sheep management activities. This document also includes discussions of alternatives that have been ruled out and justifications for their elimination. The document includes a minimum requirement analysis for activities proposed in Wilderness areas (Appendix A).

BACKGROUND

History of Bighorn Sheep in Nevada

The earliest archeological record of bighorn sheep in Nevada are remains from Pintwater Cave, northwest of Las Vegas, dated at 28,000 years before present (Buck et al. 1997 **in** NDOW 2001). Archeological investigations based on bones and petroglyphs have shown bighorn sheep to be one of the more numerous and most widely distributed large ungulates throughout historic Nevada (Harrington

1933; Jennings 1957; Gruhn 1976 **in** NDOW 2001). Seton (1929) estimated the pre-Columbian numbers of all subspecies of bighorn in North America (United States, Canada, and Mexico) at 1.5 to 2 million (**in** McCutchen n.d.).

By the beginning of the late 19th century, commercial and illegal hunting, competition with livestock, and the effects of livestock diseases all appear to have caused the decline of Nevada's bighorn sheep populations (NDOW 2001). The earliest effort at bighorn sheep management in Nevada appeared as an 1861 law closing sheep harvest between January 1 and July 1. Other laws were enacted varying the hunting season dates, but in 1901, the legislature closed bighorn hunting and it continued to be closed until 1952 (NDOW 2001). As more laws and attention were brought on bighorn sheep management, indications were that illegal, subsistence-based hunting in the state began to decline during the 1940s (Jonez 1957 **in** NDOW 2001).

The Nevada Department of Wildlife (NDOW), formerly known as the Department of Fish and Game and the Nevada Division of Wildlife, began bighorn sheep management in the late 1940s. In 1936, the U.S. Fish and Wildlife Service created the Desert National Wildlife Range for the protection of several desert bighorn sheep herds in southern Nevada. However, despite conservation efforts, Nevada's bighorn numbers continued to decline (NDOW 2001). By 1960, the overall bighorn population in the United States, including desert bighorn, had dwindled to between 15,000 to 18,200 (Buechner 1960 **in** McCutchen n.d.).

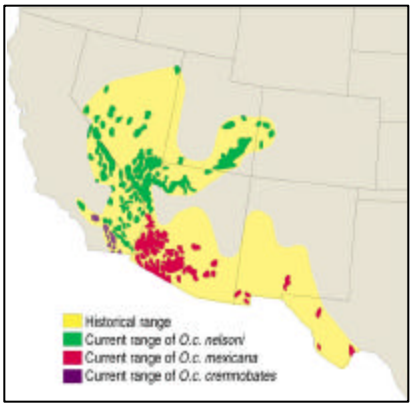


Figure 3

Bighorn population trends have been upward since the 1960s when Buechner (1960) estimated their population at 6,700 to 8,100. Buechner (1960) estimated the Nevada desert bighorn population at 1,500 to 2,000 in 1960 (McCutchen n.d.). Nevada began annual population trend counts in 1969. Transplanting programs have been successful; between 1968 and 1988 more than 800 desert bighorn were transplanted. From these animals, 21 transplanted herds have been established (Delaney 1989 **in** McCutchen n.d.). In 1993 the population was estimated at 5,294 animals, occupying 45 mountain ranges (Cummings, NDOW, unpublished data **in** McCutchen n.d.) (Figure 3).

Table 1. State of Nevada Bighorn Sheep Population Estimates for Select Years

Year	Desert Bighorn	California Bighorn	Rocky Mountain Bighorn
1990-1991	3,996	-	-
1995-1996	4,945	1,085	329
1999-2000	5,000	1,400	250
Source: Nevada Department of Wildlife, 2000.			

Bighorn Sheep Management within Lake Mead NRA

Certain herds within Lake Mead NRA, particularly the River Mountains herd, have been studied intensively. Transplants from that herd have been used to re-populate formerly inhabited mountain ranges throughout the southwest (NPS 1994). More population status and trend data is necessary for a consistent and valid monitoring program with which to monitor population trends. This information is extremely important in management discussions and resource decisions with a variety of agencies including both the Nevada and Arizona state wildlife agencies and the BLM (NPS 1999).

From 1989 to 1992 the Bureau of Reclamation funded a significant study of the migration routes and habitat in the Black Canyon area, the site of a proposed new bridge to augment the road across Hoover Dam (NPS 1999).

Bighorn sheep use and habitat studies have been conducted in the Black Canyon. Thirty-three desert bighorn sheep were equipped with radio collars on the Nevada side of the Black Canyon and 35 sheep were radio collared on the Arizona side of the Black Canyon. This was a 3-year study, begun in the fall of 1989, to assess potential impacts of the proposed additional bridge crossing in the vicinity of Hoover Dam. The project also included vegetation and habitat analysis of the area and the development of Geographical Information Systems (GIS) for analysis (NPS 1994).

An annual bighorn sheep census is conducted every three years in cooperation with the Nevada and Arizona state wildlife agencies, and with the BLM. Captures are based on censusing information. No bighorn sheep captures were conducted in 2002. The plan to conduct a capture in the Muddy Mountains and subsequent release in the Gold Buttes was cancelled due to persistent drought and the high probability that sheep were in less than optimal condition (NDOW, Cummings, memo, 2003).

Desert bighorn sheep population estimates in 2003 reflect declines in all herds at Lake Mead NRA. Downward trends are due to insufficient availability of quality forage as a result of severe drought conditions, habitat degradation, and habitat fragmentation (NDOW, Cummings, memo, 2003).

RELATED LAWS, POLICIES, AND OTHER PLANNING DOCUMENTS

Servicewide and Park Specific Legislation and Planning Documents

The NPS Organic Act directs the NPS to manage units "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner as will leave them unimpaired for the enjoyment of future generations." (16 U.S.C. § 1). Congress reiterated this mandate in the Redwood National Park Expansion Act of 1978 by stating that the NPS must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas

have been established, except as may have been or shall be directly and specifically provided by Congress."

Lake Mead NRA was established in 1964 (PL 88-639), "for the general purposes of public recreation, benefit, and use, and in a manner that will preserve, develop and enhance, so far as practicable, the recreation potential, and in a manner that will preserve the scenic, historic, scientific, and other important features of the area, consistent with applicable reservations and limitations relating to such area and with other authorized uses of the lands and properties within such area."

The Organic Act prohibits actions that permanently impair park resources unless a law directly and specifically allows for the acts. An action constitutes an impairment when its impacts "harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources and values." (Management Policies 1.4.3).

NPS Management Policies 2001 requires the analysis of potential effects of each alternative to determine if actions would impair park resources. To determine impairment, the NPS must evaluate "the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts." (Management Policies 1.4.4). The NPS must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment to the affected resources and values (Management Policies 1.4.3).

NPS units vary based on their enabling legislation, natural and cultural resources, missions, and the recreational opportunities appropriate for each unit, or for areas within each unit. This environmental assessment analyzes the context, duration, and intensity of impacts related to the alternatives associated with conducting bighorn sheep management activities, as well as the potential for resource impairment, as required by Director's Order 12, *Conservation Planning, Environmental Impact Analysis and Decision Making.*

The 1986 *General Management Plan* (*GMP*) provided the overall management direction for Lake Mead NRA. It established management zones to accommodate increasing visitor use while protecting park resources.

The 1998 Lake Mead NRA Strategic Plan established goals relating to resource protection. The 2001 Strategic Plan has reaffirmed these goals. Goal 1.a.2.X: Native Species of Special Concern, captures park efforts to mange species of special concern (plants and animals) that are not federally listed as threatened, endangered, or nonnative. These includes species identified in the park's resource management plans as having special significance to the park, or species on adjacent lands managed by other state or federal agencies where park habitat supports those species. These include charismatic

species as well as state listed sensitive species, and focus species of the Clark County Multi-Species Conservation Program and the Lower Colorado River Multi-Species Conservation Program.

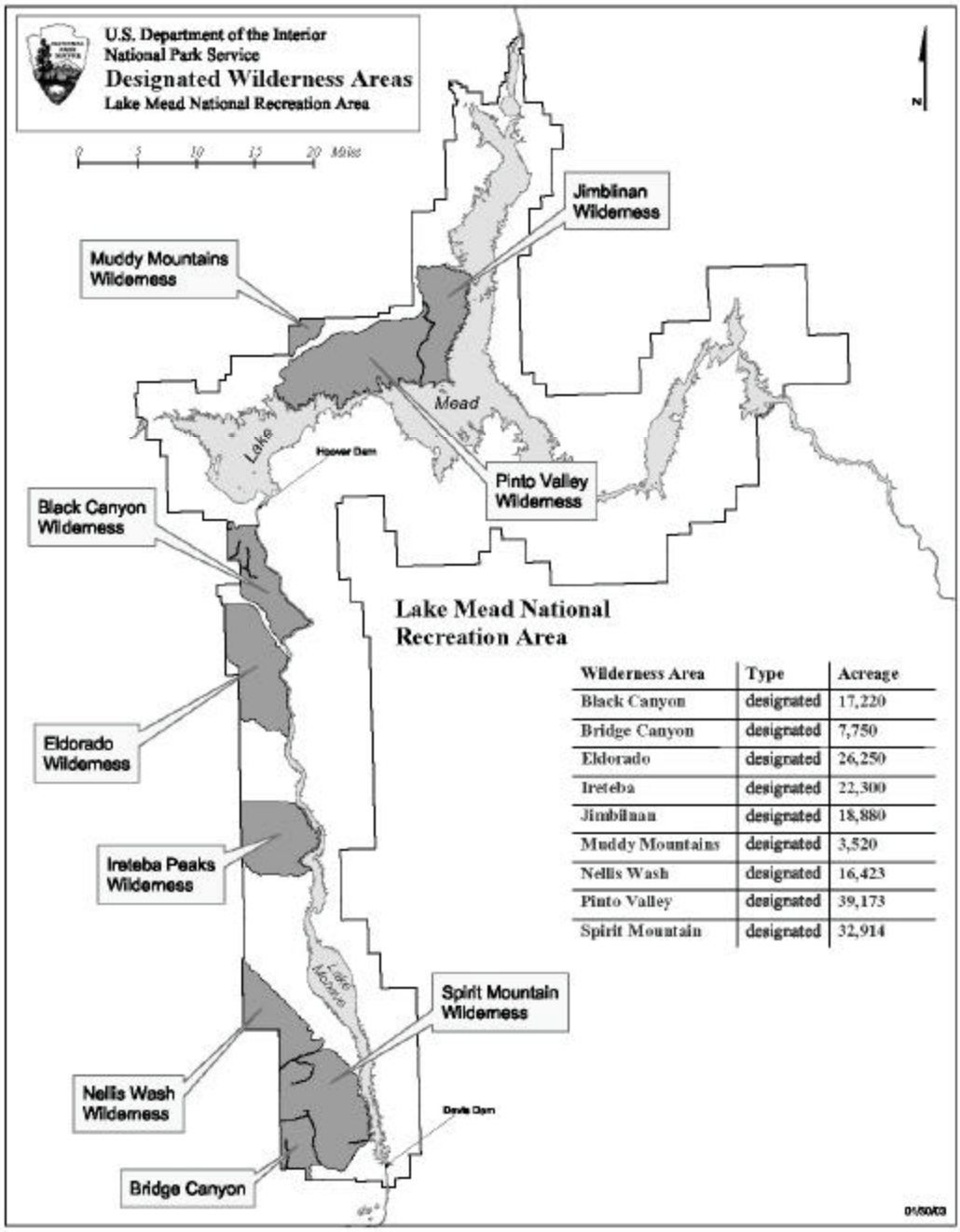
The *Wilderness Act of 1964*, NEPA (1969), and NPS Management Policies requires the assessment of the effects on wilderness values for all designated, proposed, and suitable or potential wilderness areas. *Director's Order 41: Wilderness Preservation and Management* (1999) provides guidance for the NPS wilderness management program, and guides NPS efforts in meeting the letter and spirit of the 1964 Wilderness Act. The Lake Mead NRA original Wilderness Proposal (1979, unpublished) determined that 418,655 acres of recreation area lands met the criteria for wilderness designation and 262,125 acres potentially met the criteria.

In 2002, approximately 184,439 acres of wilderness in the Nevada portion of Lake Mead NRA were designated under the *Clark County Conservation of Public Land and Natural Resources Act of 2002* (Figure 4). Section 208 of the Act discuss wildlife management activities and stipulated that, (b) management activities to maintain or restore fish and wildlife populations and the habitats to support such populations may be carried out within wilderness areas where consistent with relevant wilderness management plans, in accordance with appropriate policies such as those set forth in Appendix B of House Report 101-405, including the occasional and temporary use of motorized vehicles, if such use, as determined by the Secretary of the Interior, would promote healthy, viable, and more naturally distributed wildlife populations that would enhance wilderness values and accomplish those purposes with the minimum impact necessary to reasonably accomplish the task. And, where consistent with section 4(d)(1) of the Wilderness Act (16 U.S.C. 1133(d) and in accordance with appropriate policies such as those set forth in Appendix B of House Report 101-405, the State may continue to use aircraft, including helicopters, to survey, capture, transplant, monitor, and provide water for wildlife populations, including bighorn sheep (Section 208 (c)).

All designated, proposed, and proposed potential wilderness areas are managed to preserve the wilderness values. In addition, a minimum requirement analysis will be utilized to determine the appropriate management activities in the affected wilderness areas (Appendix A). In accordance with NPS Management Policies (6.3.5), all management decisions affecting wilderness must be consistent with a minimum requirement concept. When determining the minimum requirement, the potential disruption of wilderness character and resources will be considered before, and given significantly more weight than, economic efficiency and convenience. If a compromise of wilderness resource or character is unavoidable, only those actions that preserve wilderness character and/or have localized, short-term adverse impacts will be acceptable.

Designated Wilderness at Lake Mead NRA

Figure 4



Wilderness Area	Type	Acreage
Black Canyon	designated	17,220
Bridge Canyon	designated	7,750
Eldorado	designated	26,250
Ireteba	designated	22,300
Jimbilnan	designated	18,880
Muddy Mountains	designated	3,520
Nellis Wash	designated	16,423
Pinto Valley	designated	39,173
Spirit Mountain	designated	32,914

Other Project Related Planning Documents

The NDOW *Bighorn Sheep Management Plan* (2001) serves as a guiding document for the Nevada Board of Wildlife Commissioners and NDOW efforts in the conservation and management of bighorn sheep populations and their habitat. The plan outlines the actions and strategies that assist in planning efforts and in conducting bighorn sheep management and conservation. The underlying goal of the plan is to restore and maintain herds at optimal population levels based on a multitude of demographic and ecological parameters.

ENVIRONMENTAL ASSESSMENT

This EA analyzes one action alternative and the no action alternative and their impacts on the human and natural environment. It outlines project alternatives, describes existing conditions in the project area, and analyzes the effects of each project alternative on the environment. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1508.9).

ISSUES AND IMPACT TOPICS

Issues are related to potential environmental effects of project alternatives and were identified by the project interdisciplinary team. Once issues were identified, they were used to help formulate the alternatives and mitigation measures. Impact topics based on substantive issues, environmental statutes, regulations, and executive orders (EOs) were selected for detailed analysis. A summary of the impact topics and rationale for their inclusion or dismissal is given below.

ISSUES AND IMPACT TOPICS IDENTIFIED FOR FURTHER ANALYSIS

The following relevant impact topics are analyzed in the EA. Whether each issue is related to taking action or no action is specified.

Wildlife and Wildlife Habitat, Species of Concern

Wildlife could be temporarily disrupted or displaced from flight activities. Noise caused by aircraft, particularly helicopters, could disturb the normal activities of wildlife in the project areas.

Bighorn sheep could be harassed and disturbed during flight operations, netting, trapping, and capturing activities, and loading for transport. Equipping bighorn study animals with radio collars could temporarily disrupt the sheep.

Natural Soundscapes

Natural soundscapes are not always silent but include the sounds of blowing wind, scurrying lizards, and many other sounds found in a natural environment devoid of artificial noise. Mechanical noises, such as those produced by aircraft, can drown out these natural sounds on a temporary or recurring basis.

Visitor Experience
The proposed flights could temporarily disturb visitors in Wilderness who have expectations of natural quiet and solitude.

Wilderness
A minimum requirement analysis will be completed as part of this planning effort.

IMPACT TOPICS CONSIDERED BUT DISMISSED FROM FURTHER CONSIDERATION

Soils and Vegetation
Although helicopters may land temporarily on soils and vegetation for some projects, only negligible effects would occur. Therefore, soils and vegetation were dismissed as an impact topic.

Special Status Species
This project would have no effect on threatened, endangered, or sensitive species of wildlife or vegetation (Appendix B). This impact topic will not be further evaluated.

Water Resources, Wetlands, and Floodplains
Water may be needed for projects requiring trapping operations, however, this would be temporary and would have negligible effects. No landings would occur in or near water, and floodplains would not be obstructed. Therefore these topics will not be further evaluated.

Air Quality
Aircraft have negligible, localized, short-term adverse effects on air quality. However, no measurable impacts are expected, therefore this topic will not be further evaluated.

Cultural Resources
Implementation of the proposed bighorn management activities would have no effect on cultural resources. Therefore, this topic will not be further evaluated.

The following topics are not further addressed in this document because there are no potential effects to these resources, which are not in the project area:

- Socioeconomic resources
- Designated ecologically significant or critical areas;
- Wild or scenic rivers;
- Designated coastal zones;
- Indian Trust Resources;
- Ethnographic Resources;
- Prime and unique agricultural lands;
- Sites on the US Department of the Interior's National Registry of Natural Landmarks; or
- Sole or principal drinking water aquifers.

In addition, there are no potential conflicts between the project and land use plans, policies, or controls (including state, local, or Native American) for the project area.

Regarding energy requirements and conservation potential, aerial operations would require the increased use of energy. However, overall, the energy from petroleum products required to implement action alternatives would be insubstantial when viewed in light of production costs and the effect of the national and worldwide petroleum reserves.

There are no potential effects to local or regional employment, occupation, income changes, or tax base as a result of this project. The project area of effect is not populated and, per EO 12898 on Environmental Justice, there are no potential effects on minorities, Native Americans, women, or the civil liberties (associated with age, race, creed, color, national origin, or sex) of any American citizen. No disproportionate high or adverse effects to minority populations or low-income populations are expected to occur as a result of implementing any alternative.

SECTION II: DESCRIPTION OF ALTERNATIVES

INTRODUCTION

This section describes the alternatives considered, including the no action alternative. The alternatives described include mitigation measures and monitoring activities proposed to minimize or avoid environmental impacts. This section also includes a description of alternatives considered early in the process but later eliminated from further study; reasons for their dismissal are provided. The section concludes with a comparison of the alternatives considered.

ALTERNATIVE A- NO ACTION

Under this alternative, the routine annual census of desert bighorn sheep would not be conducted in wilderness areas. Sheep populations in the Eldorado, Muddy, Black, River, and Newberry Mountains in Nevada would not be monitored and information regarding their movements and population status would not be gathered. Desert bighorn sheep data would not be provided to land-use managers

ALTERNATIVE B- PREFERRED ALTERNATIVE
Implement Proposed Desert Bighorn Sheep Management Activities

Under this alternative, the bighorn sheep management activities would include: aerial helicopter surveys, affixing telemetry collars for a study, and, if determined appropriate, capture and relocation of selected bighorn sheep. Aerial surveys of bighorn sheep populations would occur within the Eldorado Mountains, Newberry Mountains, Black Mountains, River Mountains, and Muddy Mountains of Nevada (Figures 5 and 6). Activity would involve approximately 2 to 6 hours of flight time in each mountain range at low elevations, frequently 200 feet above ground level or lower for the purpose of conducting a routine annual census of desert bighorn sheep populations. The maximum number of flights in each Wilderness area would be approximately 2 within the Eldorado, and Muddy Mountains; and 1 flight within the Newberry, Black, and River Mountains.

Population estimates and demographic data collected would be used to set sustainable harvest quotas and inform managers of current herd conditions and trends. In addition, some bighorn would be affixed with telemetry collars to assess impacts to the sheep from highway and bridge construction. Based on the survey results, some bighorn sheep could be captured and relocated to other areas for transplant purposes.

The project manager will be Pat Cummings, Biologist, Nevada Department of Wildlife.

Figure 5

Bighorn Sheep Management Areas

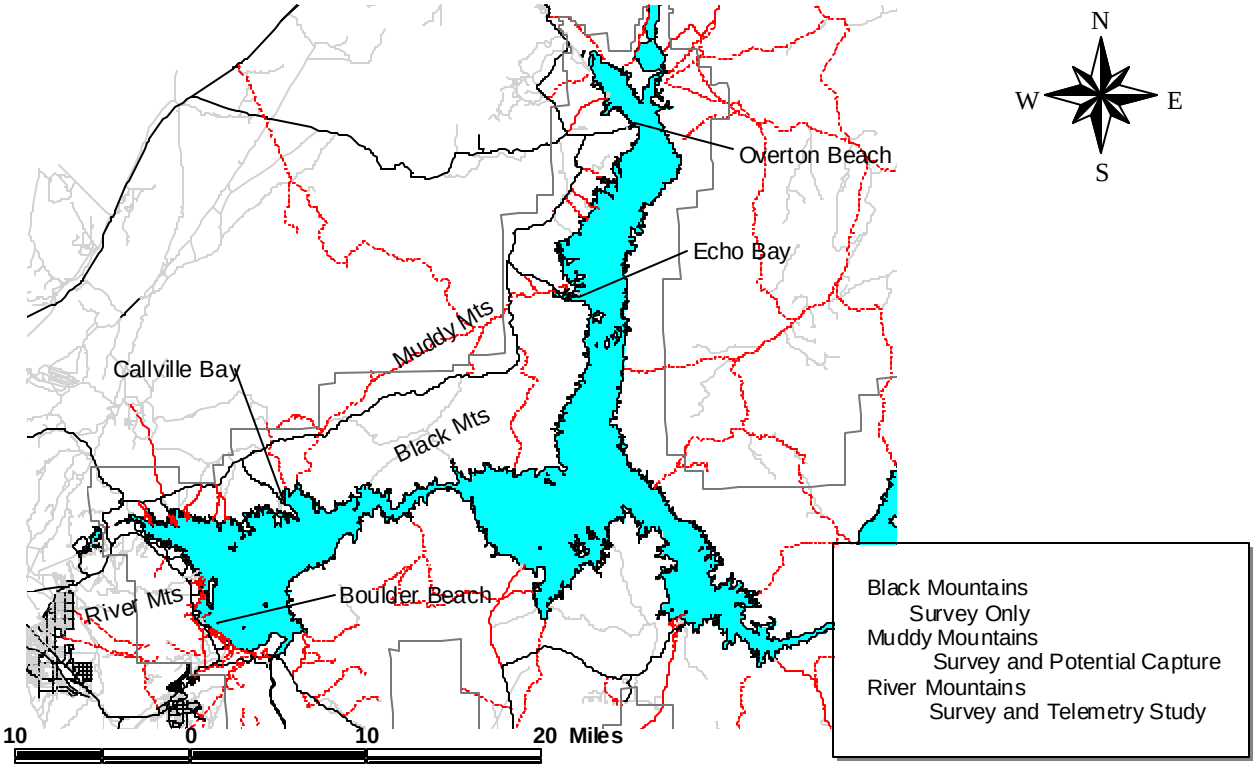
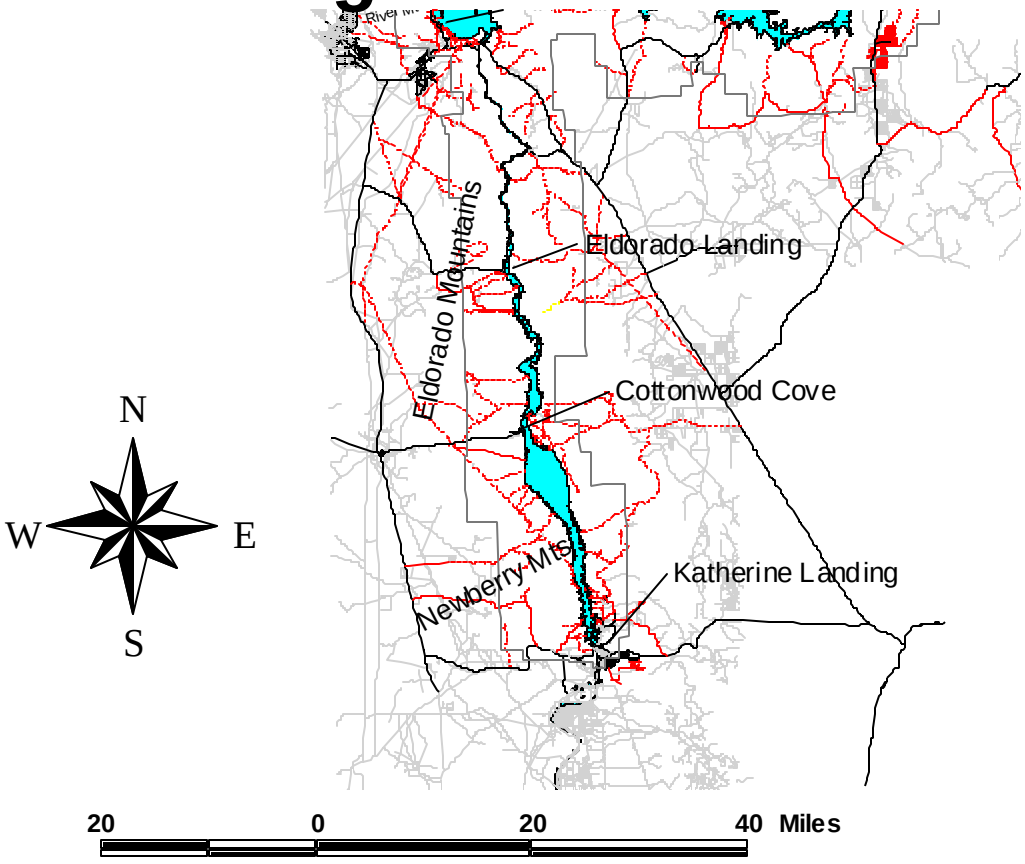


Figure 6

Bighorn Sheep Management Areas



Eldorado Mountains
Survey and Capture
Newberry Mountains
Survey Only

Table 2. Overview of Locations and Proposed Activities

Location	Aerial Survey		Capturing		Telemetry Collaring	Loading and Transporting
	Estimated Flight Time	*Potential Dates*	*Estimated Flight Time*	*Date*		
Eldorado Mountains	6 hours	Oct-Nov	16 hours	Oct.	Applicable	Applicable
Muddy Mountains	2 hours	Oct-Nov	Potential capture		Not Applicable	Potential loading and transporting
Black Mountains	6 hours	Oct-Nov	Not Applicable		Not Applicable	Not Applicable
Newberry Mountains	4 hours	Oct-Nov	Not Applicable		Not Applicable	Not Applicable
River Mountains	Not Applicable		6 hrs.	Oct.	Applicable	Not Applicable

Purpose of and Specific Activities at Each Location

Eldorado Mountains, Nevada

An aerial helicopter survey would be conducted and would entail approximately 6 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds from northeast Boulder City to the Cottonwood Cove area. There would be no landing or ground activity associated with this census.

Bighorn sheep trapping operations would be conducted in the general vicinity of Promontory Point and Gold Strike Canyon. Approximately 16 hours of flight time may be needed and would include landing to secure netted sheep for attaching radio transmitters. Trapping would be conducted by either helicopter net gun or by drop net. Additional flights would be needed during the course of the study to monitor habitat use and movements of sheep in the area or to investigate mortality signals. Monitoring will be done primarily by satellite, but two additional 3-hour spring surveys are planned in the Eldorados. The purpose of the trapping is to affix telemetry collars on bighorn sheep to assess impacts from highway and bridge construction activities occurring in the vicinity. This is associated with the six-year study funded by the Federal Highways Administration (FHWA) and was discussed in the *Black Canyon Bridge Environmental Impact Statement*.

Muddy Mountains, Nevada

An aerial helicopter survey would be conducted and would entail approximately 2 hours of flight time at low elevations. The purpose of this survey is to

conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds from the area east of the Echo Bay access road junction with Northshore Road to Blue Point Spring. There would be no landing or ground activity associated with this census.

Pending the results of the preceding aerial survey, an aerial net gun capture could be initiated in the Muddy Mountains. This would require aircraft landings to secure bighorn prior to transporting to the Echo Bay Airstrip. Sheep captured from the Muddy Mountains would be used as transplant stock in other areas as part of the NDOW's ongoing trapping and transplant program.

Black Mountains, Nevada

An aerial helicopter survey would be conducted and would entail approximately 6 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds from Echo Bay to Black Mesa (areas south and east of Northshore Road). There would be no landing or ground activity associated with this census.

Newberry Mountains

An aerial helicopter survey would be conducted and would entail approximately 4 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds within the Newberry Mountains. There would be no landing or ground activity associated with this census.

River Mountains

An aerial net gun capture would be initiated in the River Mountains. The purpose of this capture is to equip approximately 20 sheep with telemetry collars to study the impacts of increasing recreational use and urbanization on bighorn behavior.

MITIGATION, MONITORING, AND OPERATIONS SAFETY

Mitigation measures are specific actions designed to minimize, reduce, or eliminate impacts of alternatives and to protect Lake Mead NRA resources and visitors. Monitoring activities are actions to be implemented during or following the project. The following mitigation related to aerial operations and use, and bighorn sheep monitoring, would be implemented under the action alternative, and are assumed in the analysis of effects.

Wildlife

Desert bighorn sheep would be blindfolded upon capture to calm them during the transportation and tagging operations. A veterinarian would be on-site to monitor the captured desert bighorn sheep to ensure their health and well-being

Visitor Experience and Wilderness

A minimum requirement analysis has been completed as part of this EA (Appendix A). The following mitigation was developed to reduce impacts to the Wilderness areas.

Aerial operations over Wilderness areas will usually be confined to weekdays to avoid the time of the highest use by wilderness visitors. Notification of aerial operations over Wilderness will be provided to the public through the park webside, press releases, and at the park visitor centers. The base of operations will all be located outside Wilderness. All ground support vehicles would be restricted to existing access roads, outside of the designated Wilderness. All drop-net trapping locations would be located outside designated Wilderness in desert washes or previously disturbed areas.

Safety

A separate job safety analysis will be prepared for this operation that would include the following considerations.

All aerial operations would be conducted in accordance with applicable state and federal laws and policies. Only qualified and trained individuals would be permitted on the aerial operations. The capture operation will be contracted by NDOW to their prime contractor, Hawkins and Powers. Trained contractors will affix the radio collars in the field at the point of capture. The survey work will be conduted by NDOW utilizing their helicopter and pilots.

Helicopter, Pilot And Communications

All operations of helicopters must be in compliance with Federal Aviation Regulations, Part 91, and state and NPS regulations and policies. Pilots shall comply with the Contractors Federal Aviation Certificates and applicable regulations of the states of Arizona and Nevada and shall follow what are recognized as safe flying practices.

All aspects of fuel storage and handling will be in compliance with OAS 351 DM: Aviation fuel handling. When refueling, the helicopter shall remain a distance of at least 300 feet or more from animals, vehicles (other than fuel truck) and personnel not involved in refueling. Refueling will occur at the airport at local runways or airstrips, or adjacent to the recreation area.

NDOW will be responsible for coordinating flight following with NDOW or NPS dispatch and personnel on site at the fuel truck.

The contractor and project manager shall have the means to communicate with the pilot and be able to direct the use of the helicopter at all times. The contract helicopter will be equipped with radio capability to transmit and receive on the following frequencies: Simplex, local, direct (166.30 MHz); Perkins (166.30 MHz receive/166.90 MHz transmit/123.000Hz CTCSS Tone); or Wilson (166.30 MHz receive/166.90 MHz transmit/107.200Hz CTCSS Tone). When a VHF/AM radio is used, the frequency will be 122.925 MHz. Flight following will be conducted on site every 15 minutes by the helicopter manager and/or the Lake Mead NRA Communication Center. If contact has not been made at the appropriate time, the helicopter manager will continue contact efforts with the aircraft for the next 10 minutes. If no contact is made, the helicopter manager will contact the Lake Mead NRA Communication Center who will initiate immediate search procedures.

The proper operation, service and maintenance of all contractor-furnished helicopters is the responsibility of the contractor.

Safety Around Helicopters

Along with the above stipulations, the following rules apply to ground activity around helicopters. All personnel taking part in the aerial or ground portion of the operation will be provided a safety briefing and the appropriate training, prior to the operations, including:

a. Keep clear of helicopter rotors. Stay away from the rear of the helicopter.
b. Approach from the front or side, but never out of the pilot's line of vision.
c. Do not approach the helicopter until the pilot indicates you may do so.
d. Do not approach the helicopter from any side where the ground is higher.
e. Hold firmly onto loose articles.
f. Never reach up or run after articles that may have blown away.
g. Protect eyes from blowing dust by wearing protective goggles or glasses.
h. During take off, landings and hovering operations, ground crew will stay at least 200 feet away from the helicopter.
i. If blinded by dust or debris, stop, crouch low or sit down and wait for help.
j. Allow helicopter personnel to load the tools.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER EVALUATION

One alternative considered for accomplishing survey work was using fixed wing aircraft. This alternative was eliminated because the blind-spot from the fixed wings on the aircraft make it difficult for counting, and the impacts from the aircraft would be equally or more intrusive than using helicopters. Another alternative considered for accomplishing survey work was using cameras at bighorn sheep guzzlers. This alternative was eliminated from further consideration because cameras at springs would

not give reliable population estimates without long-term study, and it would still require the checking of animals on ground or by air.

Potential Future Aerial Surveys

Surveys of bighorn sheep may be conducted in Wilderness areas in the future, however this will either be addressed in future compliance documents, or in a wilderness management plan. The public would be notified of flight locations and times prior to survey activities. Mitigation and restrictions would be developed as part of that planning process.

CONSULTATION, COORDINATION, AND PERMIT REQUIREMENTS

A press release was provided to area newspapers on August 4, 2003 to announce the scoping period (Appendix C). No comments were received during the 30-day scoping period.

In addition, the following consultation and coordination will occur as part of this environmental assessment.

- Public distribution and review of EA (30 days)
- Public notification of activities proposed to occur in Wilderness
- Coordination with BLM
- Tribal Consultation

ENVIRONMENTALLY-PREFERRED ALTERNATIVE

The environmentally preferred alternative is the alternative that will promote NEPA, as expressed in Section 101 of NEPA. This alternative will satisfy the following requirements:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

- Assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;

- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable or unintended consequences;

- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;

- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and,

- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative B is the environmentally preferable alternative because overall it would best meet the requirements in Section 101 of NEPA. It would assure for all generations a safe, healthful, and esthetically pleasing surrounding. As one of the premier globally recognized bighorn sheep populations, implementation bighorn management activities would help preserve important natural aspects of our national heritage and would maintain an environment that supports diversity and variety of individual choice. It would achieve a balance between population and resource use, and permit high standards of living and a wide sharing of life's amenities.

COMPARISON OF IMPACTS

Table 3 summarizes the potential long-term impacts of the proposed alternative. Short-term impacts are not included in this table, but are analyzed in the Environmental Consequences section. Impact intensity, context, and duration are also defined in the Environmental Consequences section.

Table 3. Potential Long-Term Impacts

IMPACT TOPICS	**ALTERNATIVE A (No action)**	**ALTERNATIVE B (Preferred)**
Wildlife, Wildlife Habitat and Special Status Species	Potential for moderate to major adverse impacts	Beneficial effects
Soundscapes	No impacts	No long-term impacts
Visual Resources	No impacts	No long-term impacts
Visitor Experience	No impacts	Beneficial impacts
Safety	No impacts	Potential for moderate to major adverse impacts
Wilderness	No impacts	No long-term impacts

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SECTION III: AFFECTED ENVIRONMENT

INTRODUCTION

This section provides a description of the existing environment in the project area and the resources that could be affected by implementing the proposed alternatives. Complete and detailed descriptions of the environment and existing use at Lake Mead NRA is found in the *Lake Mead NRA Resource Management Plan* (NPS 1986), the *Lake Mead NRA General Management Plan* (NPS 1986), the *Lake Mead NRA Lake Management Plan* (NPS 2002), and on the Park website at www.nps.gov/lame.

LOCATION AND GENERAL DESCRIPTION OF LAKE MEAD

Lake Mead NRA was designated as the first National Recreation Area in 1964. Lake Mead is located in southern Nevada and northwestern Arizona, about 20 miles southeast of Las Vegas, Nevada, and about 5 miles north of Bullhead City, Arizona, and Laughlin, Nevada (Figure 1). It consists of two larger reservoirs (Lakes Mead and Mohave) formed by the Colorado River. The recreation area is approximately 1.5 million acres in size, with about 87% of that acreage being terrestrial resources. About 60% of the total acreage is within the state of Arizona, in Mohave County, and 40% of the total acreage is in the state of Nevada, in Clark County.

Lake Mead NRA users include boaters, swimmers, fishermen, hikers, photographers, roadside sightseers, backpackers, campers, and bicyclists. Recreation visits in 2002 totaled just over 7.8 million (NPS 2002).

NATURAL RESOURCES

The project area is characteristic of the Mojave Desert, with low precipitation (averaging 8 to 23 centimeters per year [3 to 9 inches per year]), low humidity, and wide extremes in daily temperatures. Winters are relatively short and mild, and summers are long and hot. The prevailing wind direction is from the south during the summer, and from the north during the winter.

Geology, Topography, and Soils

The Nevada portion of Lake Mead NRA is characterized by generally north-south trending mountain ranges separated by broad, shallow valleys. The mountains are dissected by deep ravines opening into broad alluvial fans. Adjoining fans commonly coalesce and form a continuous alluvial apron along the base of the mountains. The underlying strata of these slopes consists chiefly of Tertiary and Quaternary deposits.

Vegetation and Wildlife, Sensitive Species

The dominant community in the project area is the creosote bursage community. Grasses rarely occur in this community. The threatened desert tortoise (*Gopherus agassizii*) occurs throughout this area, and critical habitat for the tortoise has been designated within the recreation area. There are other sensitive fauna and flora that can be found in this zone such as the banded Gila monster (*Heloderma suspectum*) and the California bearpoppy (*Arctomecon californica*). There are also several special plant communities found within this area such as the stem-succulent scrub community near Cottonwood

Cove. The Newberry Mountain area, in the southern portion of the recreation area, is composed of a pinyon-juniper/oak/shrub community.

Lake Mead NRA contains internationally significant populations of desert bighorn sheep. Bighorn sheep enjoy great "heroic" species popularity with park visitors, local residents, and with bighorn sheep hunters (bighorn hunting being a legislated activity within the park) (NPS 1994).

Desert bighorn sheep (*Ovis canadensis*) are relatively common in the rugged terrain of the recreation area. Desert bighorn sheep population management involves surveying bighorn numbers and distribution, delineating subspecies distribution boundaries, capturing and transplanting bighorns, disease detection and control, and evaluating and controlling predators. The underlying goal of bighorn sheep management is to maintain bighorn herds at optimal levels. Optimal population levels based on a multitude of demographic and ecological parameters allow for bighorn numbers and distribution to be managed at the appropriate level for a given herd and area.

Air Quality

Lake Mead NRA is designated as a Class II air quality area, and air quality in the region is generally good. Most reductions in air quality are due to air flows from the Las Vegas Valley west of Lake Mead NRA.

Soundscapes

Noise-sensitive receptors are those locations where activities that could be affected by increased noise levels occur and include locations such as residences, motels, churches, schools, parks, and libraries. Existing noise levels are determined for the outdoor living area at sensitive receptors. Soundscapes in the project area are primarily affected by existing air tour operations.

CULTURAL RESOURCES

Historic Overview: Prehistory

Archeologists have identified a series of Native American cultures that have occupied Lake Mead NRA and adjacent areas in southern Nevada and Western Arizona over the last 12,000 to 13,000 years. These cultures have been divided into discrete time periods based on various criteria, i.e. changes in technology, the types of animal and plant foods used, or the migration of peoples into and out of the area.

Occupation of the area began at the end of the late Pleistocene around 12,000 to 13,000 years ago with the Paleoindian period. The Paleoindian period lasted into the Holocene and ended around 7,000 before present (BP). The Pleistocene was dominated by greater rainfall and moderate tempertures, which created an environment of vast lakes and humid conditions. During the Paleoindian period of the early Holocene, the environment was characterized by a general trend to warmer and dryer conditions. Paleoindian peoples lived in small, highly nomadic groups, utilized wild plant foods, and hunted now extinct

big game. Physical remains from the Paleoindian period usually consist of flaked stone tools and the by-products of tool manufacture, e.g. flakes and spent cores.

The Archaic period (7,000 to 2,000 BP) is characterized by nomadic peoples living in small groups adapted to the mosaic of microenvironments created by the overall warmer and dryer conditions. Their subsistence was based on gathering wild plant foods and hunting small game. Flaked stone tools and the by-products of tool manufacture, along with the common occurrence of ground stone artifacts, typify the Archaic period.

The arrival of Anasazi peoples from the east marked the end of the Archaic period and the beginning of the Saratoga Springs period. The Saratoga Springs period (2,000 to 750 BP) was dominated by the expansion of the Virgin Anasazi into the Lake Mead area, and their eventual withdrawal. The Virgin Anasazi were Puebloan peoples who used pottery and lived in permanent structures. The practiced some horticulture but still depended heavily on wild plant and animal foods.

The Late Prehistoric lifeway , which began around 750 BP, was similar to Archaic adaptations. The people lived in small mobile groups, gathered wild plant foods, and hunted small game. They also practiced small scale horticulture. Archeologically, these people are indistinguishable from the Mojave, Quechan, Hualapai, and Havasupai (Yuman-speaking peoples) and the Southern Paiute (Numic-speaking peoples) who occupied the area during the Historic period.

Euro-American History

The Spanish and later the Mexicans were the first whites to explore the area. During the Spanish/Mexican period (1500s to 1840s) trade routes were established between the population centers in New Mexico and the colonies in California. These trade routes included the Mojave Trail and the Old Spanish Trail, which passed through Southern Nevada.

The Mormons were the first to establish permanent white settlements in Southern Nevada. These included Las Vegas, St. Thomas, and Callville, the latter two of which were inundated by Lake Mead. During the late 1800s and early 1900s, the prosperity of these communities and others in the area was determined by the boom and bust cycles of the mining and ranching industries that formed the economic base of the area.

The construction of Hoover Dam in the 1930s dramatically changed the landscape of southern Nevada and Western Arizona. It brought thousands of people to the area, put Las Vegas on the map, and helped develop the area's current economy based on recreation and tourism.

SOCIOECONOMIC RESOURCES, VISITOR USE, AND PARK OPERATIONS

Tourism is an important component of the region surrounding Lake Mead NRA, and much of the tourism revolves around the gaming industry. The recreation area provides a valuable resource to the area, contributing to the local economy through the sale and

rental of boats and other water-related equipment, and other recreational equipment and services. It is estimated that the total annual impact of the recreation area on the gateway communities in the region is in the millions of dollars.

Hunting, in accordance with state law, is authorized within the recreation area. Seasons and permits are established by the Nevada Board of Wildlife Commissioners, and hunting regulations and tags are managed by NDOW. Bighorn hunting season within Lake Mead NRA is co-managed by NDOW and the NPS. Limited numbers of tags are issued each year for desert bighorn sheep within the recreation area. The number of tags is based on herd population data and habitat conditions.

WILDERNESS UNITS

Wilderness within and adjacent to Lake Mead NRA offers visitors with unique opportunities for seeking solitude and quiet in remote and isolated desert areas. Visitation within Wilderness areas is limited mostly to day-hiking, primarily in the season extending from November through mid-March. Characteristically, most hiking occurs on the weekends. Approximately 10-20 hikes per week, consisting of 2 to 4 people is typical during the winter months.

The project would take place in designated Wilderness. Wilderness is located in portions of the Eldorado Mountains, Newberry Mountains, Black Mountains, and Muddy Mountains project areas (Figure 7). Listed below is a description of each wilderness area that this project would occur.

The existing and proposed wilderness boundary lines of the units follow topographic features, access roads, rights-of-way corridors, the recreation area boundary line, section lines, and a line marking a 300-foot horizontal setback form the high-water lines of lakes Mead and Mohave. Acreages are general estimates and have not been validated.

Eldorado Wilderness (Designated)
Contained within this 26,252-acre unit are the picturesque and rugged Eldorado Mountains. The unit is a maze of peaks and side canyons with vertical cliffs extending to the edge of the Colorado River. The Eldorado Landing access road forms the southern boundary; the Colorado River/Lake Mohave 300-foot setback constitutes the east boundary, the northeast side is bounded by the Mead-Liberty Transmission Line, and the recreation area boundary forms the west unit boundary.

Spirit Mountain Wilderness (Designated)
This 33,518-acre unit is located in the Newberry Mountains. The area contains huge granite boulders, outcrops, and the build of Spirit Mountain. Numerous archeological resources occur in the area. The Spirit Mountain complex is part of a designated traditional cultural property. Bighorn sheep, bobcats, and coyotes inhabit the area. Reptiles found in the area include Western chuckwalla, side-blotched lizard, Gila monster, and rattlesnakes. The area contains important desert tortoise habitat.

Muddy Mountains Wilderness (Designated)
This unit consists of 3,521 acres of NPS administered lands, and 44,498 acres of BLM administered lands, totaling 48,019 acres. The Muddy Mountains region offers shadowy slot canyons, mind-bending geological formations and expansive views of Lake Mead. Solitude and silence are as common as the narrow canyons and gravelly washes. The landscape here displays a thriving Mojave Desert habitat of creosote bush, black brush, yucca, Joshua trees and desert willow. Desert bighorn sheep, banded Gila monster and the desert tortoise inhabit the area.

Black Canyon Wilderness (Designated)
This 17,220-acre wilderness unit is contained within the picturesque and rugged Eldorado Mountains. The area is a maze of peaks and side canyons with vertical cliffs extending to the edge of the Colorado River. Much of the terrain was formed by volcanism. A 230-kV powerline corridor separates this unit from the Eldorado unit. The area contains scenic beauty and some remnants of past mining. Water is scarce in the unit and the summer temperatures can reach 120+ degrees. Archeological resources are found in the area including petroglyphs, lithic scatters, and an intaglio. Bighorn sheep, bobcats, mountain lion, coyotes, and jackrabbits inhabit the area. Reptiles found in the area include side-blotched lizard, rattlesnakes, and desert tortoise.

Bridge Canyon Wilderness (Designated)
This unit consist of 7,761 acres in the Newberry Mountains, which rise to an elevation of 5,600 feet and offer a cool refuge from the heat of the surrounding desert lowlands. Rugged granite boulders and steep canyons are found through most of the unit. Springs and seeps offer water to wildlife in the area. The area contains huge granite boulders, outcrops, and caves, making this area very scenic. Stands of cottonwood trees can be found along the Grapevine Wash and Sacatone Wash water courses. Numerous archeological resources occur in the area. An outstanding example of petroglyphs are found in Grapevine Canyon. Bighorn sheep, bobcats, and coyotes inhabit the area. Reptiles found in the area include Western chuckwalla, side-blotched lizard, Gila monster, and rattlesnakes. The area contains important desert tortoise habitat.

Pinto Valley Wilderness (Designated)
This unit is comprised of approximately 39,175 acres of rugged hills and highly scenic valleys. These units contain Guardian Peak, which is one of the highest peaks within the area. The northern side of Boulder Canyon is formed by these units, where steep cliffs or barren rock enter the waters of Lake Mead in a dramatic fashion. Pinto Valley is formed within these units and exemplifies a much photographed topography due to the red sandstone at outcroppings which merge with the green desert vegetation and the grays, browns, and yellows of the desert floor. This area has known populations of the rare Las Vegas bearpoppy.

Jimbilnan Wilderness (Designated)
This 18,880-acre unit is bounded on the north by the Echo Wash Access Road, on the east by the 300-foot setback from the high water line of Lake Mead, on the south by an

access road, and on the west by Northshore Road and the Boathouse Cove access road. Mountainous terrain representing the northeast extremities of the Black Mountains dominates the area and contrasts directly with the flat surface of Lake Mead. The sand dunes in this area are known habitat for two rare plants, the Beaver Dam milkvetch and the sticky buckwheat.

SECTION IV: ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section presents the likely beneficial and adverse effects to the natural and human environment that would result from implementing the alternatives under consideration. This section describes short-term and long-term effects, direct and indirect effects, cumulative effects, and the potential for each alternative to impair park resources. Interpretation of impacts in terms of their duration, intensity (or magnitude), and context (local, regional, or national effects) are provided where possible.

METHODOLOGY

This section contains the environmental impacts, including direct and indirect effects and their significance to the alternatives. It also assumes that the mitigation identified in the *Mitigation and Monitoring* section of this EA would be implemented under the action alternative.

Impact analyses and conclusions are based on NPS staff knowledge of resources and the project area, review of existing literature, and information provided by experts in the NPS or other agencies. Any impacts described in this section are based on preliminary design of the alternatives under consideration. Effects are quantified where possible; in the absence of quantitative data, best professional judgment prevailed.

CRITERIA AND THRESHOLDS FOR IMPACT ANALYSES

The following are laws, regulations, and/ or guidance that relates to the evaluation of each impact topic.

Wildlife, Wildlife Habitat, and Sensitive Species

Laws, Regulations, and Policies. The NPS Organic Act, which directs parks to conserve wildlife unimpaired for future generations, is interpreted by the NPS to mean native animal life should be protected and perpetuated as part of the recreation area's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible. The restoration of native species is a high priority. Management goals for wildlife include maintaining components and processes of naturally evolving park ecosystems, including natural abundance, diversity, and ecological integrity of plants and animals.

The recreation area also manages and monitors wildlife cooperatively with the Arizona Game and Fish department and the Nevada Department of Wildlife.

Impact Indicators, Criteria, and Methodology. The impacts of wildlife were evaluated in terms of impacts to individual animals and wildlife habitat. Specific localized impacts were estimated based on knowledge garnered from similar past activities.

The following are standards used by the NPS in interpreting the level of impact to wildlife:

- *Negligible impacts*: No species of concern is present; no impacts or impacts with only temporary effects are expected.

- *Minor impacts*: Nonbreeding animals of concern are present, but only in low numbers. Habitat is not critical for survival; other habitat is available nearby. Occasional flight responses by wildlife are expected, but without interference with feeding, reproduction, or other activities necessary for survival.

- *Moderate impacts*: Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or winter; mortality or interference with activities necessary for survival expected on an occasional basis, but not expected to threaten the continued existence of the species in the park.

- *Major impacts*: Breeding animals are present in relatively high numbers, and/or wildlife is present during particularly vulnerable life stages. Habitat targeted by actions has a history of use by wildlife during critical periods, but there is suitable habitat for use nearby. Few incidents of mortality could occur, but the continued survival of the species is not at risk.

- *Impairment*: The impact would contribute substantially to the deterioration of natural resources to the extent that the park's wildlife and habitat would no longer function as a natural system. Wildlife and its habitat would be affected over the long-term to the point that the park's purpose (Enabling Legislation, *General Management Plan*, *Strategic Plan*) could not be fulfilled and resource could not be experienced and enjoyed by future generations.

In the absence of quantitative data concerning the full extent of actions under a proposed alternative, best professional judgement prevailed.

CRITERIA AND THRESHOLDS FOR IMPACT ANALYSES OF ALL OTHER ISSUES

Impacts to soundscapes, visual resources, safety, visitor experience, and wilderness were analyzed using the best available information and best professional judgment of park staff.

Terms referring to impact intensity, context, and duration are used in the effects analysis. Unless otherwise stated, the standard definitions for these terms are as follows:

- *Negligible impacts*: The impact is at the lower level of detection; there would be no measurable change.

- *Minor impacts*: The impact is slight but detectable; there would be a small change.

- *Moderate impacts*: The impact is readily apparent; there would be a measurable change that could result in a small but permanent change.

- *Major impacts*: The impact is severe; there would be a highly noticeable, permanent measurable change.

- *Localized Impact*: The impact occurs in a specific site or area. When comparing changes to existing conditions, the impacts are detectable only in the localized area.

- *Short-Term Effect*: The effect occurs only during or immediately after implementation of the alternative.

- *Long-Term Effect*: The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more and could be beneficial or adverse.

IMPAIRMENT ANALYSIS

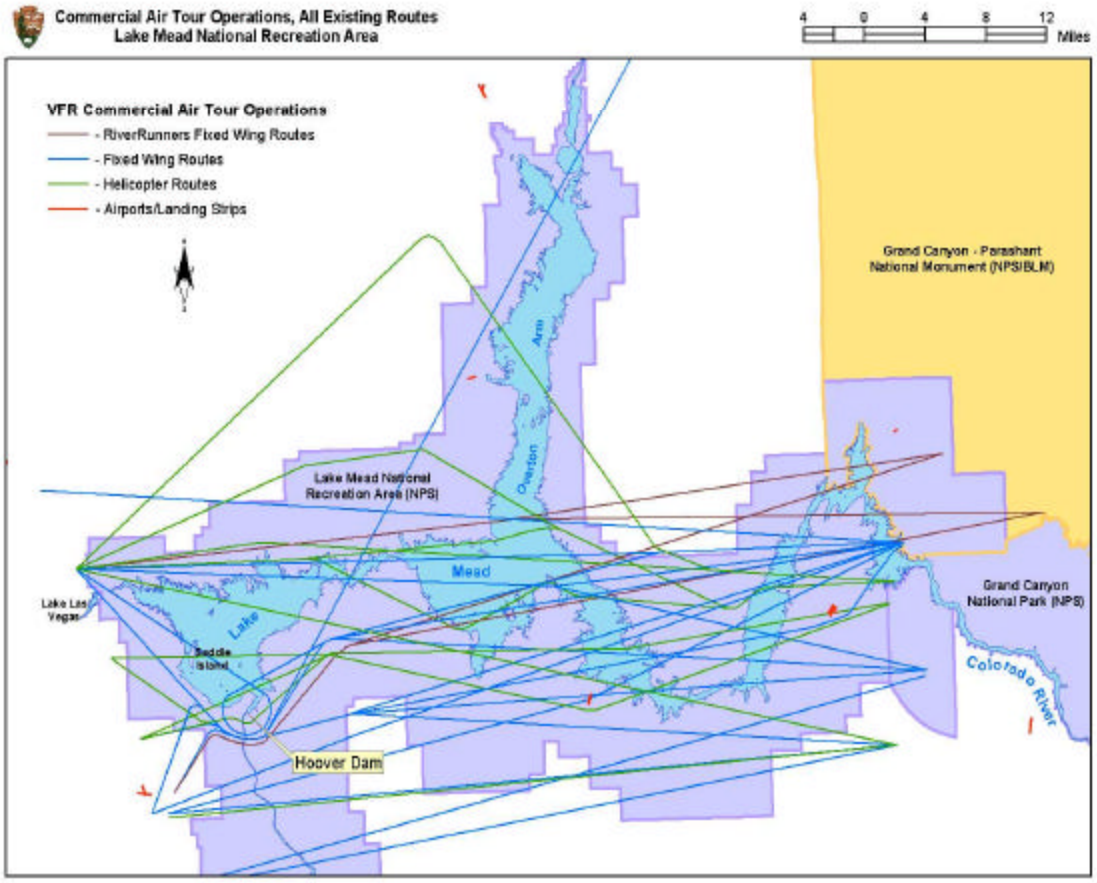
Impairment to park resources and values are analyzed in this section. Impairment is an impact that, in the professional judgement of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is key to the cultural or natural integrity of the park or that is a resource or value needed to fulfill a specific purpose identified in the enabling legislation. An impact would be less likely to constitute an impairment is it is an unavoidable result that cannot be reasonably mitigated of an action necessary to preserve or restore the integrity of park resources or values.

A determination of impairment is made in the "Conclusion" section of all natural and cultural resource impact topics of this document. Impairment statements are not required for recreational values/visitor use and experience or safety-related topics.

Cumulative Effects

Cumulative effects are the direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action (40 CFR Part 1508.7). Guidance for implementing NEPA (Public Law 91-190, 1970) requires that federal agencies identify the temporal and geographic boundaries within which they will evaluate potential cumulative effects of an action and the specific past, present, and reasonably foreseeable projects that will be analyzed. This includes potential actions within and outside the recreation area boundary. The geographical boundaries of analysis vary

Figure 7



depending on the impact topic and potential effects. While this information may be inexact at this time, major sources of impacts have been assessed as accurately and completely as possible, using all available data.

The primary activities with the potential to cumulatively affect the resources relate to the wilderness resource and the impacts from air tours, administrative overflights and NPS management activities, and other human-generated noise such as boat and personal water craft use. Past, present and future bighorn sheep management activities, habitat loss and fragmentation are also considered in evaluating cumulative impacts.

The growth of the commercial air tour industry in the Las Vegas Valley area, and increases in area visitation is considered when analyzing the cumulative impacts of the proposed alternatives (Figure 8). According to the air tour industry, there are more than 54,000 commercial air tours flying over Lake Mead NRA per year. These flights can cross designated and suitable wilderness areas. In addition, Lake Mead NRA has weekly administrative patrols over wilderness areas, although these patrols are not generally at low levels and should not alter the wilderness resource. Other activities that may result in future overflights in wilderness areas include the removal of exotic plant and animal species, and the transport of materials for special projects. These projects will be evaluated in separate environmental documents and Wilderness minimum requirement analysis, but will be considered when determining the potential cumulative impacts of the proposed project.

The growth of the Las Vegas Valley as it relates to the management of bighorn sheep and their habitat is considered when evaluating cumulative impacts. Thousands of acres of bighorn sheep habitat have been lost in recent years to urbanization in Southern Nevada. Sheep habitat has been traded from public ownership through land exchanges and no additional bighorn habitat has been acquired to compensate for this loss. Human activity, such as highways and reservoirs has fragmented vast expanses of historic bighorn habitat.

ALTERNATIVE A- NO ACTION

Wildlife, Wildlife Habitat and Sensitive Species of Concern

There would be no impact to wildlife and wildlife habitat due to the disruption from the low-level aerial bighorn sheep surveys.

There would be no direct impact to desert bighorn sheep from aerial, capture and collaring operations, and relocation. However, desert bighorn sheep management activities would be conducted without the knowledge regarding population densities and herd movements gathered from aerial operations and the proposed studies. This could lead to ineffective management practices and place the sheep populations at risk. Sheep transplants would not occur under this alternative. This could compromise the viability and sustainability of certain bighorn herds outside the recreation area.

Cumulative Effects: Wildlife would continue to be slightly impacted by the noise caused by ongoing or future aerial operations, particularly low flying helicopters that occur on a frequent basis over Lake Mead NRA. The impacts associated with low-level aerial operations include displacement and disturbance from normal activities.

Without desert bighorn sheep monitoring, which allows managers to assess the population status and distribution, it would be difficult to make sound management decisions regarding harvest, augmentations, habitat conservation and enhancement, and incompatible activities in bighorn habitat. This could lead to ineffective management of the desert bighorn sheep program at Lake Mead NRA, and create long-term impacts to the overall health of the desert bighorn sheep population in Nevada.

Conclusion: No impacts to wildlife and wildlife habitat would occur from air operations related to bighorn surveys. Minor impacts would continue due to existing and future aerial operations.

The bighorn sheep aerial operations would not be conducted under this alternative. This could lead to long-term, moderate to major impacts to the populations bighorn sheep in the Nevada portion of the recreation area. Additional negative impacts to populations outside of the park could occur as bighorn sheep may not be available for augmentations and reintroductions. There would be no impairment to wildlife and wildlife habitat from the impacts associated with the no-action alternative. There would be no impairment to bighorn sheep from the no-action alternative.

Natural Soundscapes

There would be no change in existing conditions to the natural soundscapes from the no-action alternative since no disruption to sound would occur from low-flying aircraft.

Cumulative Effects: There would continue to be impacts to the natural soundscapes, including Wilderness soundscapes, from ongoing activities, including aerial operations, vehicular traffic, boats and personal watercraft. The impacts associated with human-generated noise include intrusion on the solitude and disruption in Wilderness.

Conclusion: There would be no direct impacts to natural soundscapes under this alternative, because aerial operations associated with bighorn sheep management would not occur. There would be continue to be cumulative impacts to the natural soundscape at Lake Mead NRA and in the Wilderness due to ongoing and future aerial operations. No impairment to natural soundscapes is associated with Alternative A.

Visual Resources

Under the no-action alternative, visual resources and viewsheds would not be directly impacted from bighorn sheep management activities including low-flying aircraft.

Cumulative Effects: Aerial operations within Lake Mead NRA and designated Wilderness would continue to slightly impact the visual resources. These impacts are associated with the disruption to the wilderness experience from viewing a human-made object in Wilderness.

Conclusion: There would be slight cumulative impacts to visual resources resulting from the no-action alternative and the continuation of aerial operations in Wilderness. There would be no impairment to the visual resources or viewshed from this alternative

Visitor Experience

Under the no-action alternative, visitor experience in Lake Mead NRA and Wilderness areas would not be impacted from the aerial operations associated with bighorn sheep management activities.

Cumulative Effects: There would continue to be direct minor to moderate adverse impacts to Wilderness users from ongoing and future overflights and aerial operations within the recreation area.

Many visitors enjoy seeing desert bighorn sheep within the recreation area. In addition, hunting permits are authorized in certain areas for bighorn sheep. If populations are not managed effectively, both these visitor experiences are at risk. Visitors and hunters could be negatively impacted if bighorn sheep populations are reduced and placed at risk due to lack of effective management. Visitors may not see sheep as frequently, leading to reduced visitor satisfaction. Hunting permits may be reduced, leading to dissatisfaction among hunters throughout the state, and in the West.

Conclusion: There would be no impacts to visitor experience in a wilderness area from the no-action alternative. If populations within the recreation area are reduced due to ineffective management, then visitors and hunters may be negatively impacted. Minor to moderate activities would continue to impact wilderness users who are searching for solitude and natural quiet.

Safety

Under the no-action alternative, there would be no staff or contractors placed at risk from the aerial operations.

Cumulative: No Impact.

Conclusion: No Impact.

Wilderness

Wilderness impacts are associated with biophysical and experiential effects. Biophysical effects include the ecological health of the area, including wildlife. By not allowing appropriate bighorn sheep management activities within Wilderness, the ecological health of the bighorn sheep herd within Lake Mead NRA, which is considered an important resource in wilderness areas within Lake Mead, could be at risk. This could create moderate to major adverse impacts to bighorn sheep in wilderness areas.

Experimental effects include opportunities for solitude, natural quiet, self-reliance and discovery. Natural quiet was addressed previously under "Soundscapes" and solitude was addressed under "Visitor Experience."

Cumulative Impacts: As stated in the previous impact topics, wilderness visitors are currently being impacted by aircraft overflights. Cumulative impacts to wilderness users from aircraft include minor to moderate impacts from noise and visual disturbance, and reduced opportunity for solitude.

Conclusion: Under the no action alternative, there would continue to be minor to moderate negative impacts to the wilderness resource and wilderness visitor from aircraft overflights. There could be moderate to major adverse impacts to bighorn sheep in wilderness from the lack of management activities. There would be no impairment to Wilderness as a result of the impacts associated with this alternative.

ALTERNATIVE B- PREFERRED ALTERNATIVE

Wildlife, Wildlife Habitat, and Sensitive Species of Concern

Low level flights have the potential to displace and/or disrupt normal behavior patterns of wildlife. The duration of the flights within each project area varies from 2 to 6 hours. Sixteen hours is scheduled for the Eldorado Mountains to allow for radio collaring. Wildlife in the immediate location where landing would occur in the Eldorado Mountains and River Mountains would be disrupted and temporarily displaced to available habitat nearby. Implementation of Alternative B would result in localized, short-term, minor

adverse impacts since flight response behavior is expected without interference with activities necessary for survival.

Under Alternative B, sheep management activities would be implemented and information regarding population status, sustainability, and trends in herd movements would be available for sound management practices and decision-making. Data received from bighorn equipped with telemetry collars would provide information regarding the impacts that bridge and highway construction may pose on bighorn habitat use and movement patterns.

Depending on aerial survey results, individuals from the Muddy Mountains and/or River Mountains herds may be captured and transplanted to aid in recovery of bighorn herds elsewhere. Bighorn sheep captures and transplanting would help restore populations to their optimal levels and aid in sustainability and diversity of the herd. Desert bighorn sheep would be directly disturbed if they are captured and tagged, and/or relocated. Mitigation should prevent major impacts to individual sheep. However, there is the possibility that the capture operation or relocation could lead to direct mortality of individual sheep.

Desert bighorn sheep management activities would result in long-term beneficial effects to bighorn populations.

Cumulative Effects: Wildlife are currently disturbed and their normal activities can be disrupted by low-level flights over Lake Mead NRA, in particular, low-level helicopter flights. This could continue in the near future.

Conclusion: There would be negligible to minor, short-term, adverse impacts to wildlife from Alternative B due to temporary displacement during air operations. Individual bighorn sheep would be directly impacted from the management operations. In the long-term, bighorn sheep populations would benefit from efficient and science-based management. No impairment would occur to wildlife, wildlife habitat, and sensitive species from the impacts associated with this alternative.

Natural Soundscapes

Portions of the project would be located in designated Wilderness. Human-generated noise from project aircraft would occur overall for approximately 40 hours within a one-year timespan. Aircraft noise from the implementation of Alternative B would occur for as few as 2 hours and for no more than 6 hours in individual wilderness areas, creating temporary minor to moderate impacts. Visitors and wildlife in the vicinity of the project areas would be disturbed during flight operations. Flights would usually be scheduled during weekdays, and would avoid weekends during periods of peak visitor visitor use. Landing helicopters to secure and transport bighorn would have temporary minor adverse impacts to the natural soundscapes in the immediate area. Impacts from aircraft would result in short-term, minor, localized, adverse impacts to the natural soundscapes.

Cumulative Effects: There would be continued impacts to the natural soundscape from flights and air tours over Lake Mead NRA.

Conclusion: Under Alternative B, there would be minor, short-term, adverse impacts on natural soundscapes in wilderness areas, due to aerial operations. The impacts are considered minor because the noise generated from flight activities would be detectable, but temporary. Cumulative impacts from current flights and air tours over Lake Mead NRA would continue to impact park soundscapes. No impairment to natural soundscapes would occur from implementation of this alternative.

Visual Resources

The presence and observation of low-flying aircraft could disrupt the wilderness experience for visitors near the project areas. Short-term, negligible impacts to visual resources would occur during aerial survey activities.

Cumulative Effects: The observation of low-flying aircraft associated with air tours can detract from the viewshed and create temporary negative impacts to park visual resources.

Conclusion: Implementation of Alternative B would result in short-term, negligible impacts to visual resources due to the observation of low-flying aircraft, particularly in Wilderness.

Visitor Experience

Visitors to wilderness areas expect quiet and solitude, devoid of artificial noise and non-natural objects. During flight surveys, visitors near the project area would be impacted from sound and visual intrusions. This would result in short-term, adverse impacts to visitor experience in a wilderness area. Visitors would be impacted as little as a few minutes, or as much as 6 hours at a time for several days, depending on where they are and the schedule of the management activities.

Cumulative Effects: Wilderness visitors at Lake Mead NRA currently are impacted by overflights. This impact would continue under the no-action alternative.

Conclusion: Visitors in wilderness areas where the project is occurring would experience short-term, adverse impacts due to the visual and noise impacts from low flying aircraft in a backcountry area.

Safety

As with any aerial operation, there are inherent risks involved to participants. Mitigation measures and compliance with required policies serve to reduce the risks. However, the risks can not completely be eliminated. Therefore, there is the potential for injury and loss of human life during these operations. If this occurs, severe, even irreversible adverse impacts would result.

Cumulative Effects: None

Conclusion: Even with following required policies and safety mitigation, there could be severe, irreversible impacts to participants in the aerial operations.

Wilderness

Wilderness impacts are associated with biophysical and experiential effects. Biophysical effects include the ecological health of the area, including wildlife. Allowing appropriate bighorn sheep management activities within Wilderness would preserve the ecological health of the bighorn sheep herd within Lake Mead NRA, which is considered an important resource in wilderness areas within Lake Mead.

Experimental effects include opportunities for solitude, natural quiet, self-reliance and discovery. Natural quiet was addressed previously under "Soundscapes" and solitude was addressed under "Visitor Experience."

Cumulative Impacts: As stated in the previous impact topics, wilderness visitors are currently being impacted by aircraft overflights. Cumulative impacts to wilderness users from aircraft include minor to moderate impacts from noise and visual disturbance, and reduced opportunity for solitude.

Conclusion: Under this alternative alternative, there would continue to be minor to moderate negative impacts to the wilderness resource and wilderness visitor from aircraft overflights. The ecological health of the wilderness areas would be preserved as bighorn sheep management objectives in wilderness are accomplished. There would be no impairment to Wilderness from the impacts associated with implementation of Alternative B.

SECTION V: COORDINATION AND CONSULTATION

A 30-day public scoping period occurred between August 4 and September 4, 2003, through a press release (Appendix C). One comment was received during the review period concerning the impacts the project activities would have on desert bighorn sheep.

Public notice of the availability of this environmental assessment was published in local newspapers, and on the Lake Mead NRA Internet Web site (http://www.nps.gov/lame). Individuals and organizations could request the environmental assessment in writing, by phone, or by e-mail. The environmental assessment was circulated to various federal and state agencies, individuals, businesses, and organizations on the park's mailing list for a 30-day public review period. Copies of the environmental assessment were made available at area libraries.

A copy of the environmental assessment can be obtained by direct request to:

Resource Management Division, Compliance Branch
National Park Service
Lake Mead National Recreation Area
601 Nevada Way
Boulder City, Nevada 89005
Telephone: (702) 293-8956
Facsimile: (702) 293-8008

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SECTION VI: LIST OF PREPARERS

Chanteil Walter, Environmental Protection Assistant
Nancy E. Hendricks, Environmental Compliance Specialist/Wilderness Coordinator
Kent Turner, Chief of Resource Management
Ross Haley, Resource Management Specialist, Wildlife Branch Supervisor
Pat Cummings, Wildlife Biologist, Nevada Department of Wildlife

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SECTION VI: LIST OF REFERENCES

NPS (US Department of the Interior, National Park Service). 1986. *Final Environmental Impact Statement, Lake Mead National Recreation Area General Management Plan*. Boulder City, Nevada.

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----.2001. *Lake Mead National Recreation Area Strategic Plan, 2000-2005*. Boulder City, Nevada.

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----.2002. *Lake Mead National Recreation Area Lake Management Plan and Environmental Impact Statement.* Boulder City, Nevada.

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USFWS (US Fish and Wildlife Service). 2000. Listed Species and Species of Concern within the Area Proposed to be covered under the Lake Mead National Recreation Area Lake Management Plan, USFWS, Nevada Fish and Wildlife Office, Reno, Nevada. April 4, 2000.

----.2003. Threatened and Endangered Species System (TESS). Listings with a Current Range in Region 1. Accessed online at: http://ecos.fws.gov/tess_public/TESSWebpageRegionLists?lead_region=1#NV

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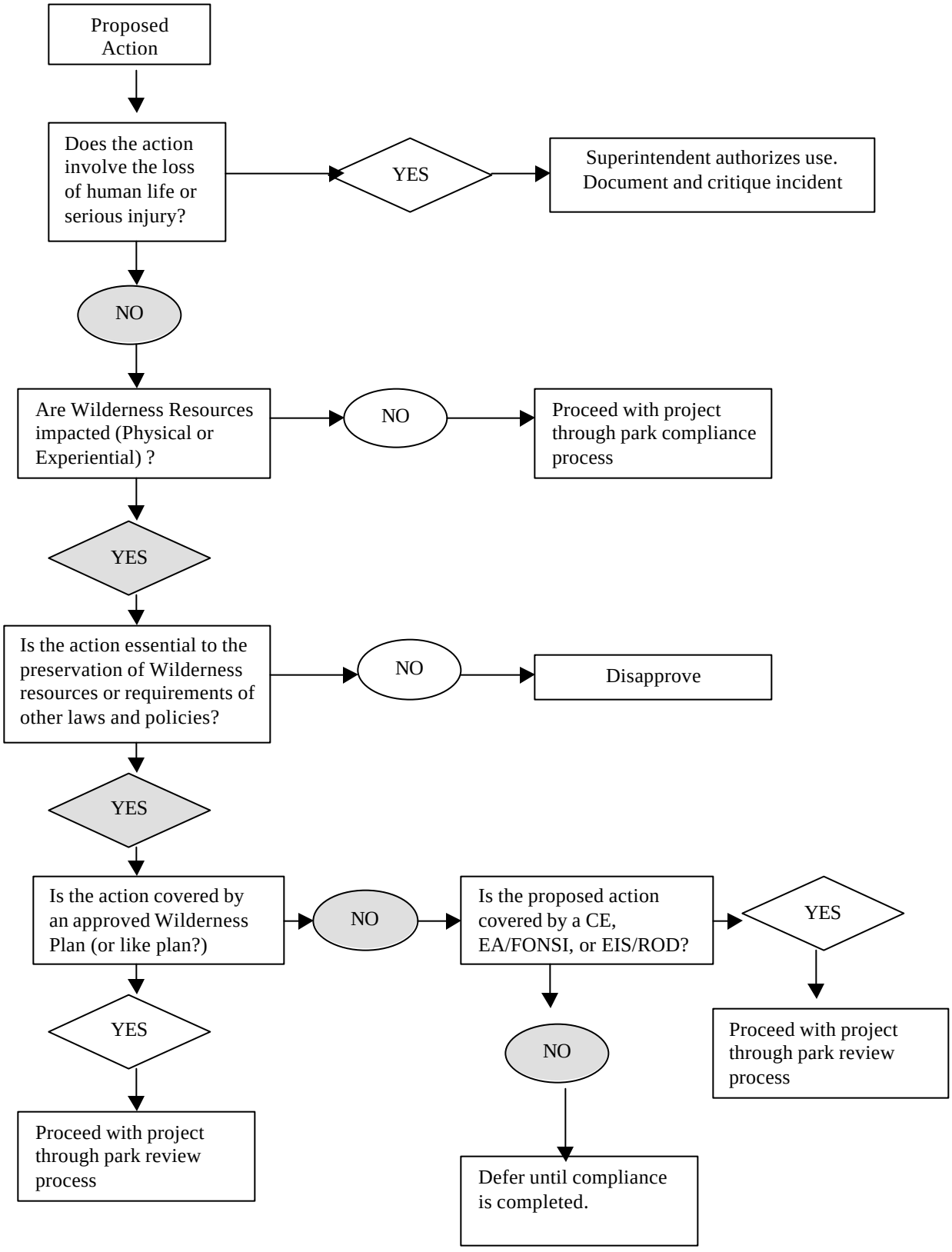
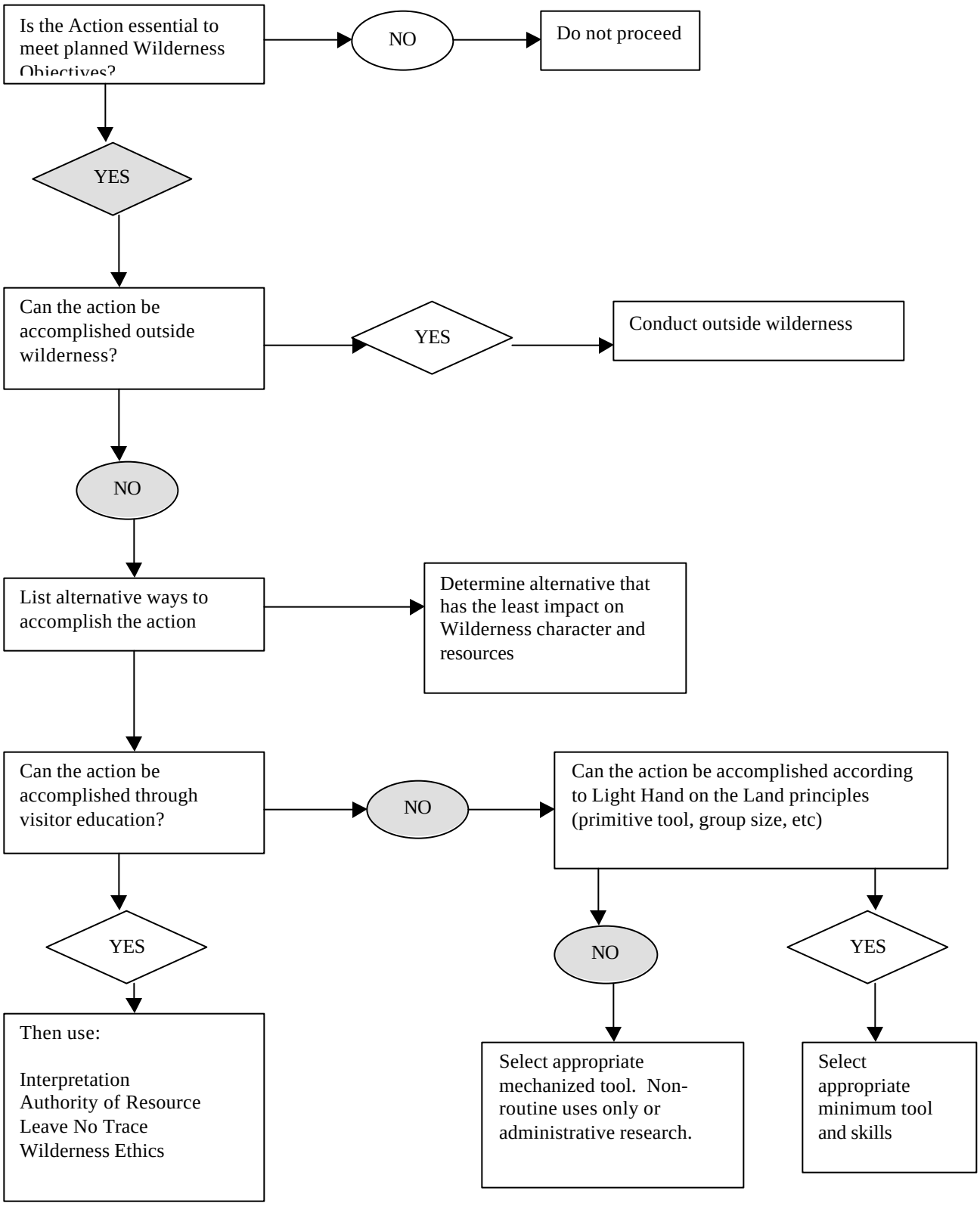
APPENDIX A

MINIMUM TOOL REQUIREMENT ANALYSIS - PART 1



MINIMUM TOOL REQUIREMENT ANALYSIS
PART 2



Minimum Requirement Analysis
Decision Screening Questions

1. Does your action insure that wilderness is not occupied and modified?

   Yes. No modification or occupation would occur.

2. Does your action maintain or move the Wilderness toward less human influence within legal constraints?

   No. Bighorn sheep management activities are within the legal framework of the Clark County Conservation Act of 2002, which established the Wilderness in Lake Mead NRA.

3. Does your rationale allow Wilderness to retain solitude and elements of surprise and discovery?

   Yes, as much as possible activities would be restricted to periods of low use.

4. Did you evaluate the traps of making decisions based on economy, convenience, comfort, or commercial value?

   Yes. Options are limited for bighorn sheep management activities based on location of sheep populations, feasibility of trapping options, and importance of the bighorn sheep herd to the ecosystem of southern Nevada.

5. Did you look beyond the short-term outputs to ensure that future generations will be able to use and enjoy the benefits of an enduring resource of Wilderness?

   Yes. Managing bighorn sheep to allow future generations to experience these creatures as part of the enduring Wilderness resource is considered important for long-term preservation goals.

6. Does the alternative support the Wilderness resource in its entirety rather than maximizing an individual resource?

   Effective bighorn sheep management supports the Wilderness resource in whole.

7. Do you recognize the unique characteristics for this particular Wilderness?

   Yes, four Wilderness units are affected.

8. Does the action prevent the effects of human activities from dominating natural conditions and processes?

   Yes – human activities are restricted and on a temporary basis only.

PROPOSED ACTION SUMMARY NOTICE
ACTION WITHIN A WILDERNESS AREA
LAKE MEAD NATIONAL RECREATION AREA

Notice Date: August 26, 2003 Proposed Action Date: Oct. 2003

Wilderness Name: Muddy Mt., Eldorado, Black Canyon, Spirit Mt., Jimbilnan, Bridge Canyon, Pinto Valley

State: Nevada **Designated** Suitable Potential

Notification Period Begins: Notification Period Ends:

Location within Wilderness: Potential Bighorn Sheep Habitat

Summary of Proposed Action:

Under this alternative, the bighorn sheep management activities would include: aerial helicopter surveys, affixing telemetry collars for a study, and, if determined appropriate, capture and relocation of selected bighorn sheep. Aerial surveys of bighorn sheep populations would occur within the Eldorado Mountains, Newberry Mountains, Black Mountains, River Mountains, and Muddy Mountains of Nevada. Activity would involve approximately 2 to 6 hours of flight time in each mountain range at low elevations frequently below 200 feet AGL for the purpose of conducting a routine annual census of desert bighorn sheep populations. Population estimates and demographic data collected would be used to set sustainable harvest quotas and inform managers of current herd conditions and trends. In addition, some bighorn would be affixed with telemetry collars to assess impacts to the sheep from highway and bridge construction. Based on the survey results, some bighorn sheep could be captured and relocated to other areas for transplant purposes.

Table *. Overview of Locations and Proposed Activities

Location	**Aerial Survey**		**Capturing**		**Telemetry Collaring**	**Loading and Transporting**
	Estimated Flight Time	*Potential Dates*	*Estimated Flight Time*	*Date*		
Eldorado Mountains	6 hours	Oct – Nov	16 hours	Oct.	Applicable	Applicable
Muddy Mountains	2 hours	Oct – Nov	Potential capture		Not Applicable	Potential loading and transporting
Black Mountains	6 hours	Oct – Nov	Not Applicable		Not Applicable	Not Applicable
Newberry Mountains	4 hours	Oct - Nov	Not Applicable		Not Applicable	Not Applicable
River Mountains	Not Applicable		6 hours	Oct.	Applicable	Not Applicable

Purpose of and Specific Activities at Each Location

Eldorado Mountains, Nevada

An aerial helicopter survey would be conducted and would entail approximately 6 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds from northeast Boulder City to the Cottonwood Cove area. There would be no landing or ground activity associated with this census.

Bighorn sheep trapping operations would be conducted in the general vicinity of Promontory Point and Gold Strike Canyon. Approximately 16 hours of flight time may be needed and would include landing to secure netted sheep for affixing radio collars. Trapping would be conducted by either helicopter net gun or by drop net. Additional flights would be needed during the course of the study to monitor habitat use and movements of sheep in the area and to investigate mortality signals. Most monitoring would be conducted via satellite, but two 3-hour spring surveys are planned. The purpose of the trapping is to affix telemetry collars on bighorn sheep to assess impacts from highway and bridge construction activities occurring in the vicinity. This is associated with the six-year study funded by the Federal Highways Administration (FHWA) and was discussed in the *Black Canyon Bridge Environmental Impact Statement*.

Muddy Mountains, Nevada

An aerial helicopter survey would be conducted and would entail approximately 2 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds from the area east of the Echo Bay access road junction with Northshore Road to Blue Point Spring. There would be no landing or ground activity associated with this census.

Pending the results of the preceding aerial survey, an aerial net gun capture could be initiated in the Muddy Mountains. This would require aircraft landings to secure bighorn prior to transporting to the Echo Bay Airstrip. Sheep captured from the Muddy Mountains would be used as transplant stock in other areas as part of the NDOW's ongoing trapping and transplant program.

Black Mountains, Nevada

An aerial helicopter survey would be conducted and would entail approximately 6 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds from Echo Bay to Black Mesa (areas south and east of Northshore Road). There would be no landing or ground activity associated with this census.

Newberry Mountains

An aerial helicopter survey would be conducted and would entail approximately 4 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds within the Newberry Mountains. There would be no landing or ground activity associated with this census.

PROJECT REVIEW AND APPROVAL FORM
FOR ACTIVITIES IN WILDERNESS

Proposed Action: Bighorn Sheep Management Activities

Location/Wilderness Unit: Muddy Mt., Black Canyon, Eldorado, Spirit Mt, Jimbilnan, Bridge Canyon, Pinto Valley

Project Proponent: Nevada Department of Wildlife

Check one:

- ❑ The proposed action is a temporary, one-time activity.
- ❑ The proposed action will be an on-going, long-term activity.

Reviewed By:

Wilderness Coordinator Date

Approved By:

Superintendent Date

APPENDIX B

Listing of Threatened and Endangered Species – State of Nevada
http://ecos.fws.gov/webpage/webpage_region_lists.html
Accessed on August 13, 2003

Nevada -- 38 listings

Animals -- 30

Status	*Listing*
E	Chub, bonytail (*Gila elegans*)
E	Chub, Pahranagat roundtail (*Gila robusta jordani*)
E	Chub, Virgin River (*Gila seminuda (=robusta*)
E	Cui-ui (*Chasmistes cujus*)
E	Dace, Ash Meadows speckled (*Rhinichthys osculus nevadensis*)
E	Dace, Clover Valley speckled (*Rhinichthys osculus oligoporus*)
T	Dace, desert (*Eremichthys acros*)
E	Dace, Independence Valley speckled (*Rhinichthys osculus lethoporus*)
E	Dace, Moapa (*Moapa coriacea*)
T	Eagle, bald (lower 48 States) (*Haliaeetus leucocephalus*)
E	Flycatcher, southwestern willow (*Empidonax traillii extimus*)
E	Frog, mountain yellow-legged (southern California DPS) (*Rana muscosa*)
T	Naucorid, Ash Meadows (*Ambrysus amargosus*)
E	Poolfish, Pahrump (*Empetrichthys latos*)
E	Pupfish, Ash Meadows Amargosa (*Cyprinodon nevadensis mionectes*)
E	Pupfish, Devils Hole (*Cyprinodon diabolis*)
E	Pupfish, Warm Springs (*Cyprinodon nevadensis pectoralis*)
E	Skipper, Carson wandering (*Pseudocopaeodes eunus obscurus*)
T	Spinedace, Big Spring (*Lepidomeda mollispinis pratensis*)
E	Spinedace, White River (*Lepidomeda albivallis*)
E	Springfish, Hiko White River (*Crenichthys baileyi grandis*)
T	Springfish, Railroad Valley (*Crenichthys nevadae*)
E	Springfish, White River (*Crenichthys baileyi baileyi*)
E	Sucker, razorback (*Xyrauchen texanus*)
T(S/A)	Tortoise, desert (outside/taken from Sonoran Desert) (*Gopherus agassizii*)
T	Tortoise, desert (U.S.A., except in Sonoran Desert) (*Gopherus agassizii*)
T	Trout, bull (U.S.A., conterminous, lower 48 states) (*Salvelinus confluentus*)
T	Trout, Lahontan cutthroat (*Oncorhynchus clarki henshawi*)
T	Wolf, gray Western Distinct Population Segment (*Canis lupus*)
E	Woundfin (except Gila R. drainage, AZ, NM) (*Plagopterus argentissimus*)

Plants -- 8

Status	*Listing*
T	Milk-vetch, Ash meadows (*Astragalus phoenix*)
T	Centaury, spring-loving (*Centaurium namophilum*)
T	Sunray, Ash Meadows (*Enceliopsis nudicaulis* var. *corrugata*)
E	Buckwheat, steamboat (*Eriogonum ovalifolium* var. *williamsiae*)
T	Gumplant, Ash Meadows (*Grindelia fraxino-pratensis*)
T	Ivesia, Ash Meadows (*Ivesia kingii* var. *eremica*)
T	Blazingstar, Ash Meadows (*Mentzelia leucophylla*)
E	Niterwort, Amargosa (*Nitrophila mohavensis*)

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APPENDIX C
Scoping Press Release

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National Park Service
U.S. Department of the Interior

Lake Mead National
Recreation Area

601 Nevada Way
Boulder City, NV 89005

702.293.8947 phone
702.293.8936 fax

Lake Mead National Recreation Area News Release

For Immediate Release: August 4, 2003 **Release #: 64-03**
Roxanne Dey, 702.293.8947

Environmental Assessment Being Prepared for Desert Bighorn Sheep Management Activities

Officials at Lake Mead National Recreation Area are soliciting public comments on desert bighorn sheep management activities planned for fall and winter 2003**.**

Desert bighorn sheep occupy most mountainous areas within Lake Mead National Recreation Area. The 2003 population estimates reflect declines in all herds. Downward trends are due to insufficient availability of quality forage as a result of severe drought conditions, habitat degradation, and habitat fragmentation.

The Nevada Department of Wildlife in cooperation with the National Park Service is considering conducting aerial helicopter surveys of bighorn sheep populations within the Eldorado Mountains, Newberry Mountains, Black Mountains, and Muddy Mountains of Nevada. Activity would involve approximately 2-6 hours of flight time in each mountain range at low elevations for the purpose of conducting a routine annual census of desert bighorn sheep populations. Population estimates and demographic data collected will be used to set sustainable harvest quotas and inform managers of current herd conditions and trends.

Nevada Department of Wildlife and Lake Mead National Recreation Area are also proposing desert bighorn sheep trapping operations in the Eldorado Mountains, Nevada. The purpose of the trapping would be to affix telemetry collars on bighorn sheep to assess impacts from highway and bridge construction activities occurring in the vicinity. Approximately 16 hours of flight time may be needed and would include landing to secure netted sheep and transport to the base of operations. Trapping would be conducted by either helicopter net gun or by drop net. Additional flights would be needed during the course of the study to monitor habitat use and movements of sheep in the area.

Aerial net gun captures may also be conducted in the River Mountains for the purpose of marking and equipping study animals with radio collars. Aerial net gun captures may also be conducted in the Muddy Mountains pending results of a preceding aerial survey. This would require landings to secure sheep and to load them for transport. Sheep captured

from the Muddy Mountains would be used as transplant stock in other areas as part of the Nevada Department of Wildlife's ongoing trapping and transplant program.

The National Park Service is in the process of preparing an environmental assessment to identify and evaluate feasible alternatives, including the no action, for this proposal. As a result, Lake Mead National Recreation Area is seeking public feedback on the issues and potential alternatives. Written comments should be sent by September 4, 2003 to: Lake Mead National Recreation Area, ATTN: Compliance Office, 601 Nevada Way, Boulder City, Nevada 89005.

-end-